

WHAT IS CLAIMED IS:

1. A fluid level controlled pumping system, comprising:

5 a pumping unit disposed within a well, the pumping unit having an inlet operable to receive a fluid to be pumped from the well; and

10 a valve coupled to the pumping unit, the valve operable to receive pumped fluid from an outlet of the pumping unit, and wherein, in response to a decreasing fluid level within the well, movement of the valve relative to the pumping unit causes the pumped fluid to be recirculated from the outlet to the inlet of the pumping unit.

15 2. The system of Claim 1, wherein the pumping unit comprises a progressive pump.

20 3. The system of Claim 1, wherein the valve comprises a floating valve.

4. The system of Claim 1, further comprising a locking system operable to releasably secure the valve in a predetermined location relative to the pumping unit.

25 5. The system of Claim 1, further comprising a check valve disposed proximate the inlet, the check valve operable to direct the recirculated fluid to the inlet.

6. The system of Claim 1, further comprising a plurality of stops disposed proximate the valve, the stops operable to limit movement of the valve to predetermined locations relative to the pumping unit.

7. A fluid level controlled pumping system, comprising:

a progressive pump disposed within a well, the pump having a stator/rotor portion for pumping a fluid in the well from a first location to a second location, the stator/rotor portion having an inlet and an outlet; and

a valve coupled to the pump, wherein, in response to a change in fluid level within the well, movement of the valve relative to the pump causes the pumped fluid to be recirculated from the outlet to the inlet of the pump.

8. The system of Claim 7, wherein the valve comprises a floating valve.

9. The system of Claim 7, further comprising a locking system operable to releasably secure the valve in a predetermined location relative to the pump.

10. The system of Claim 7, further comprising a check valve disposed proximate the inlet, the check valve operable to direct the recirculated fluid to the inlet.

11. The system of Claim 7, further comprising a plurality of stops disposed proximate the valve, the stops operable to limit movement of the valve to predetermined locations relative to the pump.

12. A method for fluid level controlled pumping, comprising:

providing a pump disposed within a well, the pump having an outlet and an inlet operable to receive fluid
5 to be pumped from the well and an outlet;

providing a valve coupled to the pump, the valve operable receive the fluid from the outlet of the pump; and

recirculating the fluid from the outlet to the inlet
10 via the valve in response to a decrease in a fluid level within the well.

13. The method of Claim 12, wherein the pumping unit comprises a progressive pump.
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14. The method of Claim 12, wherein recirculating comprises aligning a passage of the valve with a port of the pump, the port disposed proximate the outlet.

20 15. The method of Claim 12, wherein providing the valve comprises providing a floating valve, the floating valve operable to move relative to the pump in response to a change in the fluid level within the well.

25 16. The method of Claim 15, further comprising providing a plurality stops disposed proximate the valve, the stops operable to restrict movement of the valve to predetermined locations relative to the pump.

17. The method of Claim 12, wherein recirculating comprises recirculating the fluid to substantially prevent operation of the pump absent fluid lubrication.

- 5 18. The method of Claim 12, wherein providing the valve comprises providing a valve slidably coupled to the pump, and further comprising providing a locking system operable to releasably secure the valve at a predetermined location relative to the pump.

19. A fluid controlled pumping system, comprising:
a progressive pump disposed within a well, the pump
having a passage extending to a suction end of the
pumping unit;

5 a pressure sensor coupled to the passage and
operable to determine a fluid pressure within the
passage; and

a controller coupled to the pump and operable to
regulate a fluid lubrication of the pumping unit in
10 response to the fluid pressure.

20. The system of Claim 19, wherein the controller
is operable to regulate the fluid lubrication of the pump
by regulating a rotational velocity of the pump.

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21. The system of Claim 19, wherein the fluid
pressure within the passage corresponds to a fluid depth
within the well.

20 22. The system of Claim 19, wherein the pump
comprises:

a stator; and

a rotor disposed within the stator, the rotor
operable to rotate relative to the stator to pump a fluid
25 within the well from a first location to a second
location, and wherein the passage comprises an internal
passage of the rotor.

23. The system of Claim 19, wherein the controller is operable to regulate the fluid lubrication of the pump by regulating a flow rate of the pump to maintain a substantially constant depth of a fluid within the well.

24. A method for fluid controlled pumping, comprising:

providing a progressive pump disposed within a well, the pump having a passage extending to a suction end of the pump;

determining a fluid pressure within the passage; and automatically regulating a fluid lubrication of the pump in response to the fluid pressure.

25. The method of Claim 24, wherein regulating the fluid lubrication comprises regulating a rotational velocity of the pump.

26. The method of Claim 24, wherein determining the fluid pressure within the passage comprises determining a fluid depth within the well.

27. The method of Claim 24, wherein the pump comprises a stator and a rotor, the rotor disposed within the stator, the rotor operable to rotate relative to the stator to pump a fluid within the well from a first location to a second location, and wherein the passage comprises an internal passage of the rotor.

28. The method of Claim 24, wherein regulating the fluid lubrication comprises regulating a flow rate of the pump to maintain a substantially constant fluid level within the well.

29. The method of Claim 24, wherein regulating the fluid lubrication comprises increasing the rotational velocity of the pump in response to an increase in the fluid pressure.

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30. The method of Claim 24, wherein regulating the fluid lubrication comprises decreasing the rotational velocity of the pump in response to a decrease in the fluid pressure.

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31. The method of Claim 24, wherein regulating comprises regulating the rotational velocity of the pump to substantially prevent the pump from rotating without fluid lubrication.

32. A fluid controlled pumping system, comprising:
a pumping unit disposed within a well, the pumping unit having a passage extending to a suction end of the pumping unit;

5 a pressure sensor operable to determine a fluid pressure associated with the well; and

a controller coupled to the pumping unit and operable to decrease a flow rate of the pumping unit in response to a decrease in the fluid pressure, and
10 operable to increase a flow rate of the pumping unit in response to an increase in the fluid pressure.

33. The system of Claim 32, wherein the pumping unit comprises a progressive pump.

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34. The system of Claim 33, wherein the controller is operable to regulate the flow rate of the pumping unit by regulating a rotational velocity of the progressive pump.

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35. The system of Claim 34, wherein the controller is operable to regulate the flow rate of the pumping unit to maintain a substantially constant depth of a fluid within the well.

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36. A method for fluid controlled pumping, comprising:

providing a pumping unit disposed within a well, the pumping unit having a passage extending to a suction end
5 of the pumping unit;

determining a fluid pressure associated with the well;

decreasing a flow rate of the pumping unit in response to a decrease in the fluid pressure; and

10 increasing a flow rate of the pumping unit in response to an increase in the fluid pressure.

37. The method of Claim 36, wherein providing the pumping unit comprises providing a progressive pump.

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38. The method of Claim 37, wherein the flow rate is changed by changing the rotational velocity of the progressive pump.

20 39. The method of Claim 36, wherein the flow rate of the pumping unit is regulated to maintain a substantially constant fluid level within the well.